Exhibit B

Normalized Signal vs. Nucleotide Number

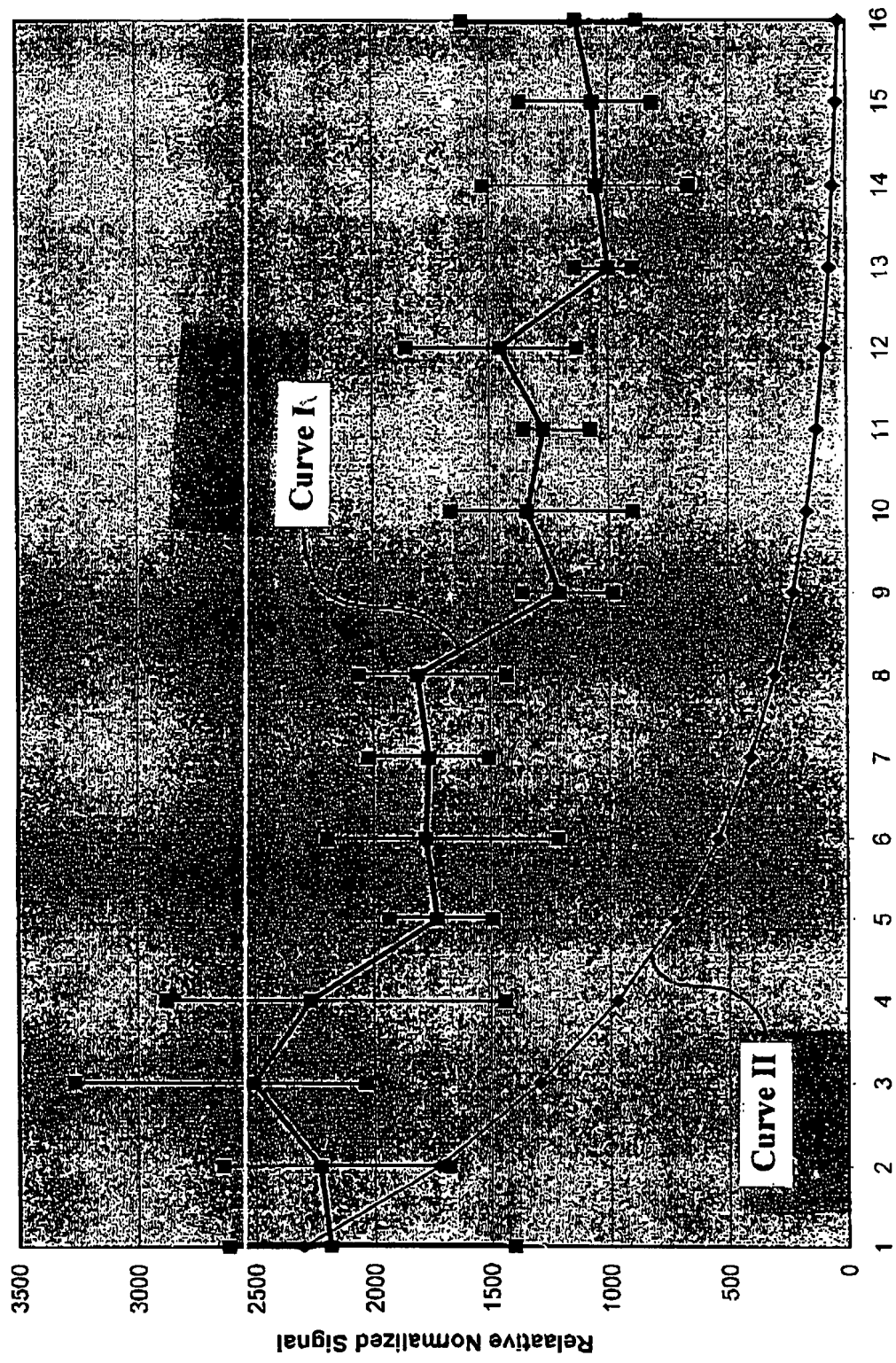

Exhibit B

DICTIONARY OF GENETICS & CELL BIOLOGY

Norman Maclean

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STRUCTURE). The active site, whether occurring on the surface of the enzyme or buried in a cleft, occupies only about 5 percent of the total surface of the enzyme molecule. The initial binding of the substrate involves the formation of non-covalent bonds (e.g., HYDROGEN BONDS, ELECTROSTATIC BONDS, HYDROPHOBIC interactions, VAN DER WAAL'S FORCES with chemical groups at the active site. These groups may move position slightly in order to accommodate the substrate (the induced fit theory), so the active site resides in a flexible region of the protein and does not usually involve rigid structures. During catalysis COVALENT BONDS may be formed, and then broken, as part of the reaction mechanism. Catalysis generally involves one or more of the following: optimal spatial alignment of the substrate(s) on the enzyme surface: distortion of bond angles and stretching of bond lengths; transfer of protons or electrons (acid/base catalysis). The chemical groups involved in catalysis include the chemically reactive side-chains of the amino acids histidine, lysine, arginine, serine, threonine, tyrosine, cysteine, glutamic acid and aspartic acid, and for some enzymes a COENZYME, or COFACTOR.

active transport. Transport of molecules against a concentration gradient across a biological membrane. This implies movement of molecules from areas of low to areas of high concentration, the reverse of simple DIFFUSION. Active transport commonly involves CARRIER proteins, which bind the molecule to be transported and move with it through the membrane. Energy is also required and is supplied by ATP, also implying that active transport is directional and not necessarily reversible. Important examples of active transport are the exclusion of sodium from neurones to induce a resting potential (*see* SODIUM PUMP) and the movement of amino acids into cells to permit protein synthesis. *See also* FACILITATED DIFFUSION.

actomyosin. Protein that is a conjugate of ACTIN and MYOSIN. The conjugate is formed on a temporary basis during the contraction of striated muscle.

acylglycerols. *See* GLYCERIDES.

adaptation. Change in a nervous receptor with constant stimulation, such that fewer impulses per unit time are evoked by an external stimulus. Adaptation may result from changes in the membranes of receptor cells, or it may follow from changes in accessory structures associated with a sense organ. The sharp decline in sensitivity to a particular smell in the human is an example of adaptation. *See also* DESENSITIZATION.

adaptive enzyme. Enzyme that is synthesized only in the presence of an inducer, usually a substrate molecule. Production of such enzymes involves an adaptation by the cell to a change in the external or internal environment. *See also* INDUCIBLE ENZYME.

adaptive enzyme synthesis. *See* ENZYME INDUCTION.

adaptive evolution. Process of evolution that makes a species or population more suited to its environmental NICHE.

adaptive landscape. Topographical representation of two gene frequencies each plotted against average FITNESS.

adaptive value. Worth of a particular GENOTYPE in conferring an advantage or increased FITNESS, on an organism in a particular environment.

adaptor. Short sequence of DNA used to splice together two longer DNA molecules, only one of which has COHESIVE ENDS.

adaptor RNA. *See* TRANSFER RNA.

ADCC. *See* ANTIBODY-DEPENDENT CELLULAR CYTOTOXICITY.

additive factors (additive genes). Series of non-ellelic gene sequences which each affect the same phenotypic character (*see* PHENOTYPE) in a synergistic fashion (*see* SYNERGISM).

additive genetic variation. Component of variation (*see* VARIANCE) with respect to some quantitatively measurable character that behaves in heredity as if determined by gene differences (*see* MUTATIONS) of additive effect. Taken literally it implies the